

\$2 per square foot. Decorative tiles will run higher. Usually a professional installation is needed.

Plastic wallboard comes in both enamel and plastic finishes. The cost range is about \$1 per square foot for enamel and \$2 per square foot for formica or plastic finish. This type wall covering is used mostly in bathrooms and kitchens.

Plaster is seldom used except in commercial buildings. Cost will run higher than most wall coverings because of labor involved. This requires special skills and facilities. Plaster is generally painted.

Brick or stone is used mostly for decorative walls and fireplace walls. The price runs higher for this material as brick and stone are used for structural purposes too. Brick and stone work should be done by a professional.

Wall mouldings of both wood and plastic are available for trimmings and decorating rooms. They are available in different sizes with simple or elaborate decorative effects.

Plastic moulding is cheaper in most cases than wood moulding.

An approximate comparative cost analysis of sheet rock, wallpaper, and paneling for a 12'x14' room might be made. This analysis does not include labor, tools, or equipment required to do a skillful job.

A room with sheet rock @ \$2 per panel and enough paint to finish walls and the trim would cost about \$100.

A room with wallpaper @ \$10.00 per roll over sheet rock and enough paint for trim and woodwork would run about \$260.

A room of true wood paneling @ \$10 per panel and sheet rock ceiling and enough paint or stain woodwork would run about \$230.

Walls and wall coverings generally require skilled workmen to do a good job. Labor may cost as much as materials for most walls and wall coverings. Be sure you secure skilled workmen and quality materials to get the most for your money. Painting and papering may be done by the do-it-yourselfer; follow the manufacturer's directions.

Adding Carports, Garages, Storage

ADDING A GARAGE or carport to your home may be your first experience with building of any kind. Whether it results in a pleasant or unpleasant experience depends somewhat on the amount of time and preparation you and your family are willing to make.

It takes time to investigate the conditions that will influence many of your decisions concerning the location, size and design of your garage. It will take time to consider your family's space needs for storage, work, play, etc., before deciding to build a garage, carport, or storage building. And if you do not expect to build your own garage or carport, you will need time to communicate your thoughts to an architect and/or builder.

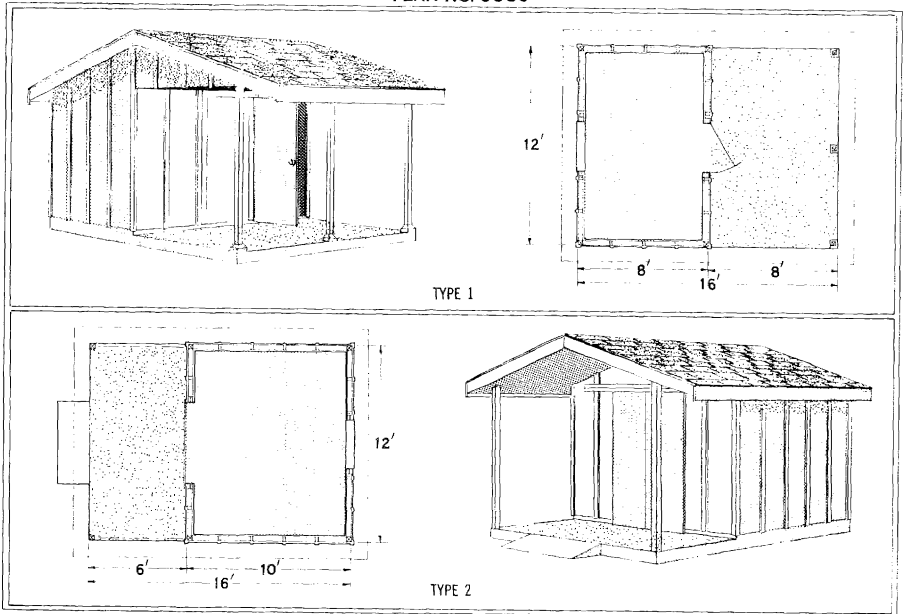
In this chapter, the overall procedure will be discussed so that the "do-it-yourselfer" will have some idea of what is involved and the person hiring the services of an architect, engineer or builder can communicate more effectively when discussing anything from what he wants or needs to how he expects it to be done.

To begin with, a scale drawing of your lot showing the location of your house, property lines, the setback and clearances required by local zoning ordinances, trees, walkways, etc., will prove an invaluable source of information concerning existing conditions.

If you have the information needed to locate your property lines exactly, you may wish to make your own drawing. If you don't have the information, you may need to have your property sur-

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veyed. In this case, an engineer can provide you with a scale drawing of your lot, locating any additional features on it that you request.

These features would include any and all things that would prevent you from locating your garage in any position you might choose. Besides those noted previously, you would need to indicate the location of your septic tank, leaching field and/or well. Also, it would be wise to note the location of any moderate or steep slopes.

Although the information will not be shown on the plan, you need to collect information about the type of soil on which you are building, the existence and location of ledges, and the height of the water table. Most of this information can be found on a soil survey map of your county which is available through your local office of the Soil Conservation Service.

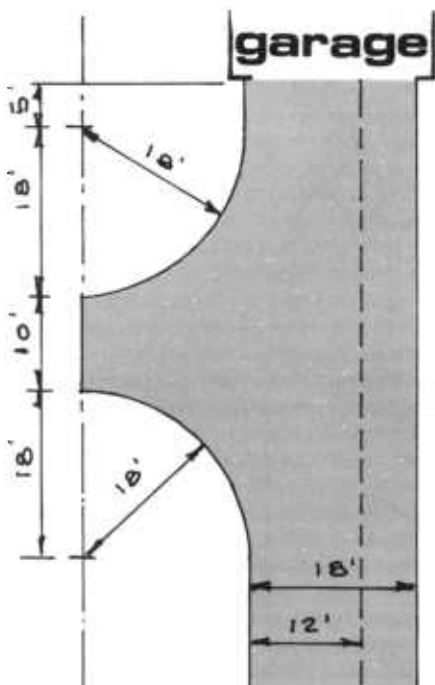
Now is the time to consider your

family's space needs. The following questions may prove helpful:

1. Do you need space for one___ or two___ cars?
2. Do you need space for play or recreation? For a laundry? A greenhouse? A workshop?
3. Do you need to store any of the following items:

Garden tools	Window screens
Freezer	Storm sash
Building materials	Lawn furniture
Snowblower	Firewood
Bicycles	Snowmobiles
Boats	Travel trailer
Carpentry tools	Motor bikes
4. Do you need complete protection from the wind, rain, snow and sun?
5. Do you need partial protection from the weather for living space, play area recreation?
6. Are you trying to save money?

If you need space for storing an average car, a 12' x 22' structure will



Turning "Y"

be adequate for a single car and a 24' x 22' structure for two cars.

For those considering a separate area for laundry, small greenhouse or workshop addition at the side or end of the garage, a minimum 5' is suggested. A 12'-long work space would be adequate for a small greenhouse or laundry, and probably more than adequate for a work bench.

If you do not need a wall, you can use some of the garage for work space and reduce the addition to 3'.

Many of the items listed in Question #3 can be stored in an additional two feet of depth. Other items like lawn mowers, garden tractors, bicycles and snowblowers which vary greatly in dimensions may need to be stored separately.

Once you have answered the questions relating to your space needs and determined the amount of space available for placing the garage or carport in the location you and your family consider most desirable, you can prob-

ably decide whether a carport or garage would be most suitable.

If you are trying to save money and need only partial protection from the weather for your activities and storage a carport will probably provide the best solution for your family's needs.

Where you will locate your garage or carport may be determined initially by the amount of space available between the house and the edge of your property which is unrestricted by zoning or other existing conditions on the lot.

One item not previously discussed is the orientation of the garage. If the garage will block light and air from entering the house where needed, you must consider either changing its location or building a carport instead.

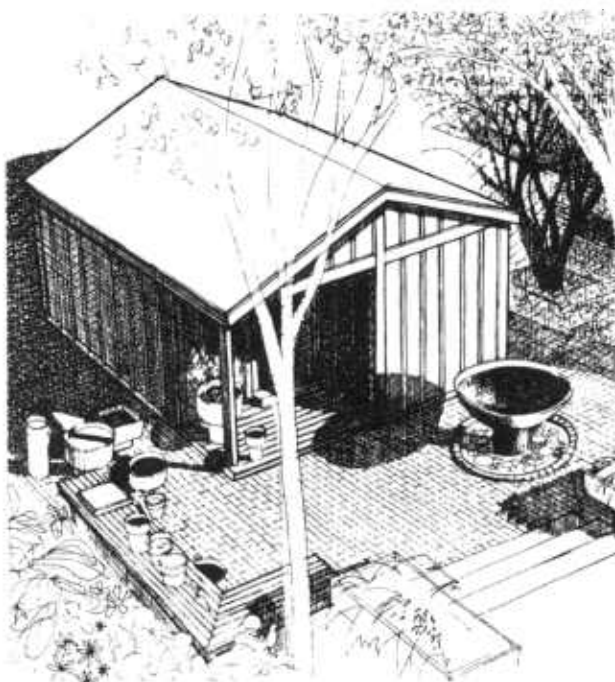
Another factor is the location of your driveway and turning space. For a straight driveway with a "Y" for turning and backing you will need a minimum of 15' and a maximum of 20' between the edge of your garage and the property line. The 18' shown on the driveway illustration is for backing and turning a car of average length.

Other points to consider when designing driveways are ease of access and safety. A safe driveway avoids the dangers of backing into the street, steep grades, and areas that will collect water or be covered with ice in winter.

Where to locate the garage or carport in the plan is frequently easier than designing the exterior so that it looks as if it belongs there instead of being an afterthought. This can be done by adding a single car garage directly to the end of a building the same width, continuing the same roof and eave lines, and using the same exterior material and finish. Such a solution is particularly suitable when making additions to small homes 32' to 48' in length.

Where steep grades are encountered it is usually wise to detach the garage or carport from the house. It may not be as convenient but it avoids difficult roofing, foundation and design problems. Frequently the family is grateful for the semi-secluded space created when this is done.

If you are unsure about how your



This storage and potting shed illustrates a multi-use building in which lawn and garden equipment can be stored on one side and the other side used for a potting area.

home may appear when you add a garage or carport, do not hesitate to consult an architect, house designer or specialist at your state university extension service.

It will be helpful to the person you consult if you send him the drawing you have made showing lot conditions as well as photographs of the house and a clear statement of your problem. If you have planning or construction difficulties he will be able to help you with these, too.

Having chosen the location for your garage, carport or storage building, be sure construction plans comply with any local building codes. Such codes primarily specify construction standards designed to meet the basic safety and health requirements. Proper selection and use of materials or overall pre-

fabricated unit design, not building codes, generally determine the structure's durability and appearance.

Grading for good drainage is absolutely essential to satisfactory performance. Roofs collect water. This must be considered. So must the runoff onto the surrounding land. Structures added to existing buildings can cause problems if connections are poorly planned.

The bottom of all foundation footings should be placed below the prevailing frost penetration. Detached structures can, however, be satisfactorily built on floating slab foundations if there is good drainage under and away from this slab.

Masonry is not the only alternative for use as a permanent foundation material. Do not overlook pressure-treated

wooden posts or poles. Wood treated with penetrating preservatives under pressure can be very durable. In fact, treated wood pilings driven deep into the ground support many large buildings and some major highways.

Carport and garage floor drains seem to be a perennial problem. A simple but effective way to drain a floor is to slope the whole floor toward the driveway opening. Three inches of slope in 24 feet is often recommended. But constructing this slope is easier said than done, and mistakes made laying concrete are hard to correct.

Plan #5930, prepared by the U.S. Department of Agriculture, is available from the Cooperative Extension Service at your State University. It shows how to construct a 24' x 24' two-car garage using pressure-treated posts. Plan #5929 is for construction of the same garage but with a conventional masonry foundation. Both are "idea" plans which can be modified to suit your specific needs.

Roof and wall design varies in different parts of the country according to what is known as live load. Live load is usually determined by the prevailing winds and snow. Unfortunately, many small buildings are structurally unsound and require much maintenance or they may be subject to total failure.

Avoid false economy. Try to be sure that the builder has the knowledge and the experience to adapt plans for your location.

Doors in new, single-car garages should be at least 9' wide. Two-car garages might have two 9' doors or a single large door 16' to 18' wide. Wide doors are helpful when the approach to a garage cannot be straight. Interior posts should be avoided whenever possible.

Well-made large or small doors are readily available with hardware permitting easy opening. Automatic or remote-controlled door-openers may be worth considering, depending on your needs. Garages used for storage should also have a pedestrian door.

Small, portable storage buildings are popular. Durability of prefabricated units varies mostly with price. Proposed use and location may determine whether or not one of these structures will suit your needs. Light construction which makes structures easily transported and low in cost may lead to poor serviceability. Failure due to wind and snow is not uncommon.

The U.S.D.A. Cooperative Plan Exchange has several good designs available from the Cooperative Extension Service at your State University. Plan #6093 is for a 10' x 12' storage building in the style of a traditional, gambrel-roofed barn. Plan #6086 has four designs, 12' x 16', 10' x 8', 12' x 10' and 12' x 16'. Three of these plans have a gable roof and a single-slope shed roof. Plan #6100 is an expandable-shed type that may be 8' x 8' or 8' x 16'.

When considering additional storage space in a garage or carport, it may be possible to add loft space around perimeter walls or directly overhead in an attic under roof slopes which are steep enough. This type of storage is good for seldom-used items and out-of-season articles.

After all plans are completed, it is only human to hope for an instant building. But you must consider your builder's schedule and the availability of materials. Substantial savings may also be possible during periods of slow construction demand.

Heavy rains or deep snows can cause costly slowdowns and should be avoided. It might be helpful to put in the foundation during good weather and build above grade whenever conditions are favorable.

FOR FURTHER READING:

U.S. Department of Agriculture. *Wood-Frame House Construction*, AH 73, for sale by Superintendent of Documents, Washington, D.C. 20402.

Midwest Plan Service, *Family Housing Handbook*, Iowa State University, Ames, Iowa.

Ramsey, Charles G. and Sleeper, Harold R. *Architectural Graphic Standards*, John Wiley & Sons, Inc., New York, N.Y., 1956.